PATENT ABSTRACTS OF JAPAN

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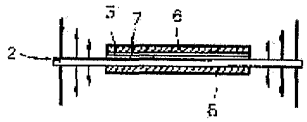
(54) TAB TAPE WITH WARP PREVENTIVE FILM

(57)Abstract:
PROBLEM TO BE SOLVED: To prevent warping by forming a warp preventive film for checking the warped tape at the lower section of the tape used as a substrate.
SOLUTION: A warp preventive film 8 is formed at the lower section of the polyimide tape 2 used as a substrate. It is preferable that the warp preventive film 8 is composed of the same substance as a solder resist 6. It is preferable that the warp preventive film 8 is formed in the same extent as the area of the solder resist 6 applied to a part of the lower section of the polyimide tape 2 such as the upper section of a copper pattern 3, but the warp preventive film 8 may also be formed extending over the whole of the lower section of the polyimide tape 2. Accordingly, since a stress equal to the bent in one direction also works in the opposite direction by forming the warp preventive film 8, the balance of the stress holds, and warping can be obviated.



LEGAL STATUS

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] this invention relates to TAB tape which is applied to TAB tape, especially possesses a curvature prevention layer.
[0002]
[Description of the Prior Art] In the manufacture technique of a semiconductor, TAB (Tape Automated Bonding) method is a method which connects an internal lead of the pad and tape of IC chip through a bump, and TAB package is mainly used for the semiconductor device by which a package application is carried out at LCD (Liquid Crystal Display), i.e., LCD drive IC. By drive IC which drives this, slimming, the formation of a detailed pitch, and many pins-ization are progressing continuously, and TAB is also calculated for slimming and detailed pitch-ization as large-sized-ization of LCD progresses recently.
[0003] TAB tape is usually a three-tiered structure, and in order to paste up a tape, and the pattern formed in the upper part of this tape, and the aforementioned tape and the aforementioned pattern of each other, it consists of the adhesives formed among these.
[0004]
[Problem(s) to be Solved by the Invention] However, although TAB tape which has the three-tiered structure of the separate quality of the material mutually as mentioned above is produced through various processes with a temperature difference, the difference in the coefficient of thermal expansion between this quality of the material curves owing to, and a phenomenon produces it. Furthermore, although a protective coat is applied to the upper part of a pattern in the final process of TAB tape production process in order to protect a pattern, this causes a much more large curvature phenomenon. Although TAB tape of a long and slender configuration is especially produced in recent years according to the formation of many pins and slimming of TAB tape, in this case, a curvature phenomenon becomes much more intense. Therefore, since it pastes up while the fraction pasted up with PCB or LCD panel had been distorted, when TAB tape was mounted in PCB (Printed Circuit Board) or LCD panel owing to the curvature phenomenon of TAB tape, an adhesive agent arises.
[0005] Therefore, the purpose of this invention is to offer TAB tape without a curvature phenomenon.
[0006]
[Means for Solving the Problem] in order that TAB tape of this invention may connect a chip with the tape which acts a substrate with the exterior electrically -- an area predetermined to the upper part of the aforementioned tape -- with, in order to stop the formed pattern, the protective coat formed in the upper part of the aforementioned pattern in order to protect this pattern, and that the aforementioned tape curves, it is characterized by the thing which was formed in the lower part of the aforementioned tape and which curves and is equipped with a prevention layer
[0007] According to the suitable detailed example, the aforementioned tape and the aforementioned pattern of each other are pasted up with the adhesives formed among these. While the aforementioned tape consists of a polyimide, the aforementioned pattern consists of copper and the aforementioned protective coat consists of a solder resist. Especially the aforementioned curvature prevention layer consists of the same matter as the aforementioned protective coat, or the difference of the coefficient of thermal expansion with the aforementioned protective coat consists of less than 10% of the matter. Furthermore, the aforementioned curvature prevention layer is formed in the whole lower part of the aforementioned tape, or is formed in a part of lower part of the aforementioned tape.
[0008]
[Embodiments of the Invention] Hereafter, based on an attached drawing, the gestalt of suitable operation of this invention is explained in detail. However, this invention is not limited to the gestalt of the following operation, but it is clear for various deformation to be possible for the person with the usual knowledge in the concerned field within the limits of the thought of this invention. Moreover, the conventional trouble is also mixed and the following explanation explains so that this invention can be understood easily.
[0009] If drawing 1 is referred to, usual TAB tape will come to provide a chip 1, the polyimide tape 2, the copper pattern 3, the slit hole 4, the device hole 5, and the solder resist 6. The aforementioned chip 1 contains IC which carries out a predetermined function like LCD drive IC. The aforementioned polyimide tape 2 acts a substrate. The aforementioned copper pattern 3 connects the aforementioned chip 1 with the exterior electrically. The aforementioned slit hole 4 is space used in

case the aforementioned TAB tape, i.e., TAB package, is mounted in PCB. The aforementioned device hole 5 is space in which the aforementioned chip 1 is laid. The aforementioned solder resist 6 is for protecting the aforementioned copper pattern 3 from the influence of external.

[0010] Drawing 2 is a cross section of the conventional example of the above TAB tapes, and is an A-A' line cross section of drawing 1 . If drawing 2 is referred to, the conventional TAB tape possesses the polyimide tape 2, the copper pattern 3, the adhesives 7, and the solder resist 6. The aforementioned polyimide tape 2 acts a substrate. in order that the aforementioned copper pattern 3 may connect the chip 1 of drawing 1 with the exterior electrically -- the upper part of the aforementioned polyimide tape 2 -- predetermined area -- with, it is formed The aforementioned adhesives 7 are formed among these, in order to paste up the aforementioned polyimide tape 2 and the aforementioned copper pattern 3 of each other. Moreover, in order to protect the aforementioned copper pattern 3 from the influence of external, the aforementioned solder resist 6, i.e., a protective coat, is applied to the upper part which the aforementioned copper pattern 3 exposed. Generally the aforementioned solder resist 6 is applied only to one side in which the aforementioned copper pattern 3 was formed.

[0011] However, since a coefficient of thermal expansion differs from the aforementioned polyimide tape 2, the aforementioned solder resist 6 curves toward the side to which the aforementioned solder resist 6 is applied on the whole, as shown in drawing 2 , and a phenomenon produces it. Therefore, since it pastes up owing to the curvature phenomenon of TAB tape while the fraction pasted up with PCB or LCD panel had been distorted when the aforementioned TAB tape is mounted in PCB or LCD panel, about [that exact adhesion is difficult] and a failure arises. Usually, the curvature phenomenon of TAB tape is so excessive that [so that the aforementioned solder resist 6 becomes thick, and] area becomes long and slender. Especially, on TAB tape with many pins, or long and slender TAB tape, it curves and a phenomenon becomes much more intense.

[0012] Then, this invention aims at curving by changing the structure of TAB tape and preventing a phenomenon.

[0013] Drawing 3 is a cross section of TAB tape by the gestalt of operation of this invention. If drawing 3 is referred to, TAB tape concerning the aforementioned this invention will be equipped with the polyimide tape 2, the copper pattern 3, the adhesives 7, the solder resist 6, and the curvature prevention layer 8. in order that the aforementioned polyimide tape 2 may act a substrate and the aforementioned copper pattern 3 may connect the chip 1 of drawing 1 with the exterior electrically -- the upper part of the aforementioned polyimide tape 2 -- predetermined area -- with, it is formed It is applied to the upper part which the aforementioned copper pattern 3 exposed in order to form the aforementioned adhesives 7 among these in order to paste up the aforementioned polyimide tape 2 and the aforementioned copper pattern 3 of each other, and for the aforementioned solder resist 6, i.e., a protective coat, to protect the aforementioned copper pattern 3 from the influence of external. The curvature prevention layer 8 is a layer newly prepared by this invention, and in order to prevent the curvature of the aforementioned TAB tape, it is formed in the lower part of the aforementioned polyimide tape 2.

[0014] As for this curvature prevention layer 8, it is desirable to consist of the same matter as the aforementioned solder resist 6, and the difference of the coefficient of thermal expansion with the aforementioned solder resist 6 can constitute it from less than 10% of the matter. Moreover, as for the curvature prevention layer 8, it is desirable to be formed equally to the area of the solder resist 6 applied to a part of lower part of the aforementioned polyimide tape 2, for example, the upper part of the aforementioned copper pattern 3, however it can also continue and form it in the whole lower part of the aforementioned polyimide tape 2. And since it acts also in the orientation where the force equal to the force turn to one side of the aforementioned TAB tape by doing in this way, curving and forming the prevention layer 8 is opposite, a balance of the force is materialized and the curvature phenomenon of TAB tape is prevented.

[0015]

[Effect of the Invention] As explained in full detail above, it curves on TAB tape concerning this invention, and a phenomenon is prevented, and when mounted in PCB or LCD panel, the fraction pasted up with PCB or LCD panel doubles exactly.

[Translation done.]